

## **ABSTRACT**

A method of JPEG compression of an image frame divided up into a plurality of non-overlapping, tiled  $8 \times 8$  pixel blocks 5  $B_{ij}$  where  $i, j$  are integers covering all of the blocks in the image frame. A global quantization matrix  $Q$  is determined by either selecting a standard JPEG quantization table or selecting a quantization table such that the magnitude of each quantization matrix coefficient,  $Q_{ij}$ , is inversely proportional to a visual importance,  $I_{ij}$ , to the image of a corresponding DCT basis vector. Next a linear scaling factor  $S_{ij}$  is selected which defines bounds over which the image is to be variably quantized. Transform coefficients,  $D_{ijmn}$ , obtained from a digital cosine transform of  $B_{ij}$ , are quantized and the quantized coefficients  $T_{ijmn}$  and  $Q * S_{min}$  are entropy encoded, where  $S_{min}$  is a user selected minimum scaling factor, to create a JPEG image file. The algorithm is unique in that it allows for the effect of variable-quantization to be achieved while still producing a fully compliant JPEG file.